Pioneer

AUDIO/VIDEO
MULTI-CHANNEL RECEIVER

VSX-D510

Operating Instructions

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

THE STANDBY/ON BUTTON IS SECONDARY CONNECTED AND THEREFORE DOES NOT SEPARATE THE UNIT FROM MAINS POWER IN STANDBY POSITION.

IMPORTANT

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.

– Increase the separation between the equipment and receiver.

– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

– Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT NOTICE

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

Information to User

Alteration or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

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"DTS" and "DTS Digital Surround" are trademarks of Digital Theater Systems, Inc. Manufactured under license from Digital Theater Systems, Inc.

[For U.S. model]

As an ENERGY STAR® Partner, Pioneer Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency. **K001 En**

[For Canadian model]

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSERESS A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

If the socket outlets on the associated equipment are not suitable for the plug supplied with the product, the plug must be removed and an appropriate one fitted. Replacement and mounting of an AC plug on the power supply cord of this unit should be perfomed only by qualified service personnel. The cut-off plug must be disposed of as an electrical shock hazard could exist if connected to a socket outlet. **H022AEn**

[For Canadian model]
This Class B digital apparatus complies with Canadian ICES-003.
[Pour le modèle Canadien]
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

IMPORTANT SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the product is operated.

RETAIN INSTRUCTIONS — The safety and operating instructions should be retained for future reference.

HEED WARNINGS — All warnings on the product and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

CLEANING — Unplug this product from the wall outlet before cleaning. The product should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

ATTACHMENTS — Do not use attachments not recommended by the product manufacturer as they may cause hazards.

WATER AND MOISTURE — Do not use this product near water — for example, near a bathtub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

ACCESSORIES — Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

CART — A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

VENTILATION — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

POWER SOURCES — This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

LOCATION – The appliance should be installed in a stable location.

NONUSE PERIODS – The power cord of the appliance should be unplugged from the outlet when left un-used for a long period of time.

GROUNDING OR POLARIZATION

- If this product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other), it will fit into the outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- If this product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin, it will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

OUTDOOR ANTENNA GROUNDING — If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.

LIGHTNING — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

POWER LINES — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

OVERLOADING — Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

OBJECT AND LIQUID ENTRY — Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

SERVICING — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

DAMAGE REQUIRING SERVICE — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance — this indicates a need for service.

REPLACEMENT PARTS — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

SAFETY CHECK — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

WALL OR CEILING MOUNTING — The product should not be mounted to a wall or ceiling.

HEAT — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

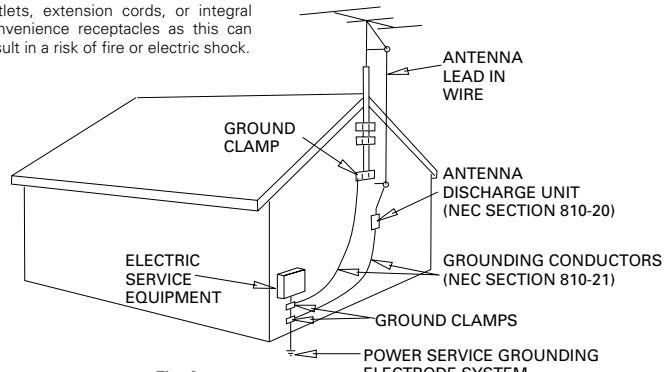


Fig. A

NEC — NATIONAL ELECTRICAL CODE

Checking the Supplied Accessories

Please check that you've received the following supplied accessories:

- AM loop antenna
- FM wire antenna
- Dry cell batteries (AA size IEC R6P) × 2
- Remote control
- Operating instructions

Using this Manual

This manual is for the VSX-D510 audio/video multi-channel receivers.
It is divided into two main sections:

Set up
This section covers installing your receiver and connecting up all the other components in your home theater system to it. It also describes how to set up a multi-channel speaker system to take full advantage of the great surround sound features of your receiver.

Operation
This section shows you how to use every feature of the receiver and its remote control unit. It also covers using the supplied remote control to operate your other home theater components. To find out more about a specific button, control or indicator, see Displays & Controls starting on page 18. This will point you to the relevant chapter in the manual.
In the Additional Information section (p.34-35) you'll find a troubleshooting section and specifications.

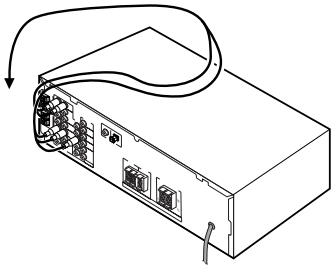
Installing the Receiver

Please note:

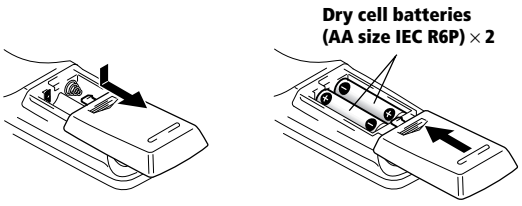
- Do not place objects directly on top of this unit. This would prevent proper heat dispersal.
- When installing in a rack, shelf, etc., be sure to leave more than 8 inches (20 cm.) of space above the receiver.

When Making Cable Connections

Be careful not to arrange cables in a manner that bends the cables over the top of this unit as shown in the illustration. If the cables are brought over this unit, the magnetic field produced by the transformers in this unit may cause a humming noise to come from the speakers.



Loading the Batteries



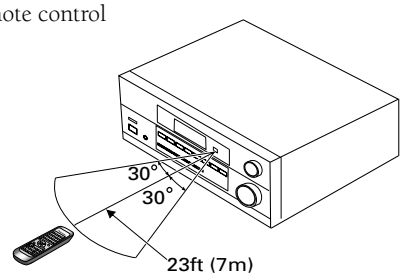
CAUTION:
Incorrect use of batteries may result in such hazards as leakage and bursting. Observe the following precautions:

- Never use new and old batteries together.
- Insert the plus and minus sides of the batteries properly according to the marks in the battery case.
- Batteries with the same shape may have different voltages. Do not use different batteries together.
- When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country or area.

Operating Range of Remote Control Unit

The remote control may not work properly if:

- There are obstacles between the remote control and the receiver's remote sensor.
- Direct sunlight or fluorescent light is shining onto the remote sensor.
- The receiver is located near a device that is emitting infrared rays.
- The receiver is operated simultaneously with another infrared remote control unit.



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Congratulations on buying this fine Pioneer product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

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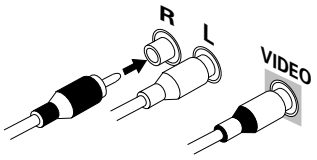
Before making or changing the connections, switch off the power and disconnect the power cord from the AC outlet.

Audio/Video Cords

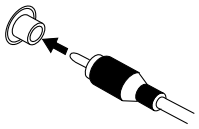
Use audio/video cords (not supplied) to connect the video components and a video cord to connect the monitor TV.
Connect red plugs to **R** (right), white plugs to **L** (left), and the yellow plugs to **VIDEO**.
Be sure to insert completely.



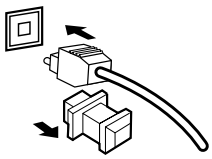
Digital Audio Cords/Optical Cables

Commercially available digital audio coaxial cords (standard video cords can also be used) or optical cables (not supplied) are used to connect digital components to this receiver.
When you use optical digital input or output terminals, pull off the caps and insert the plugs. Be sure to insert completely.

Digital audio coaxial cord (or standard video cord)

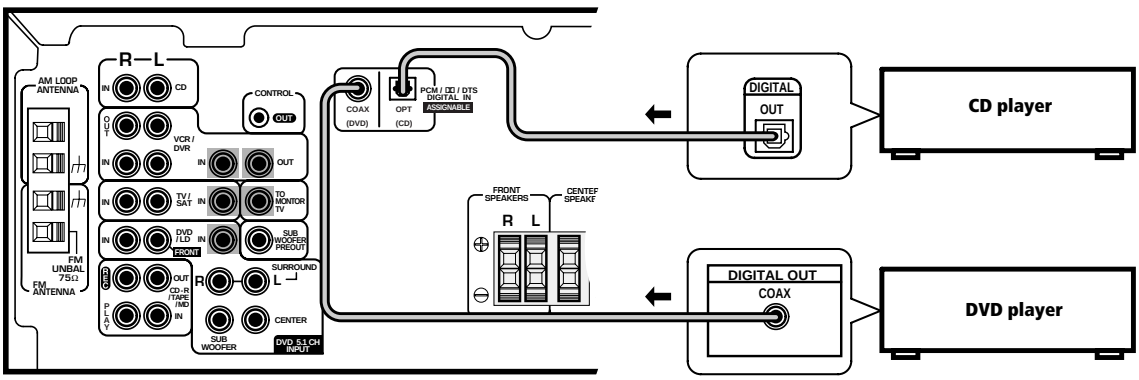


Optical cable



Connecting Digital Components

In order to use PCM/DD Digital/DTS soundtracks, you need to make digital audio connections. You can do this by either coaxial or optical connections (you do not need to do both). The quality of these two types of connections is the same but since some digital components only have one type of digital terminal, it is a matter of matching like with like (for example, the coaxial out from the component to coaxial in on the receiver). The VSX-D510 has a coaxial and an optical input for a total of two digital inputs. Connect your digital components as shown below.
When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the wall outlet.

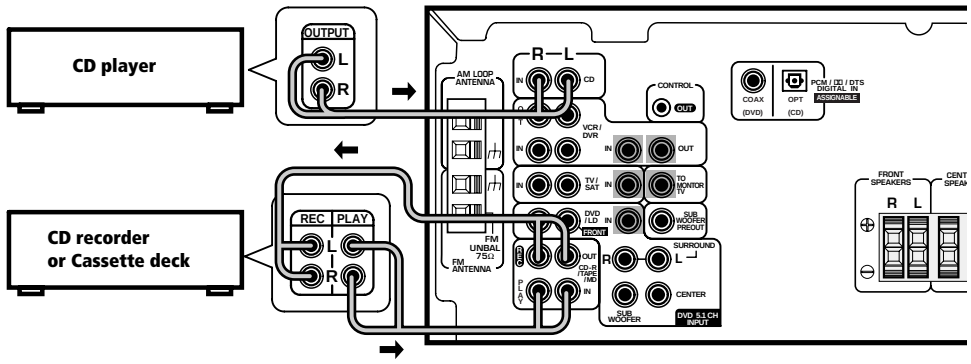


The arrows indicate the direction of the audio signal.

Connecting Audio Components

To begin set up, connect your audio components to the jacks as shown below. These are all analog connections and your analog audio components (like a cassette deck) use these jacks. Remember that for components you want to record with, you need to hook up four plugs (a set of stereo ins and a set of stereo outs), but for components that only play, you only need to hook up one set of stereo plugs (two plugs). To use Digital source features you must hook up your digital components to the digital inputs but it is also a good idea to hook up your digital components to analog audio jacks. If you want to record to/from digital components (like an MD) to/from analog components, you must hook up your digital equipment with these analog connections. See p.6 for more on digital connections.
When connecting your equipment, always make sure the power is turned off and the power cord is disconnected from the wall outlet.

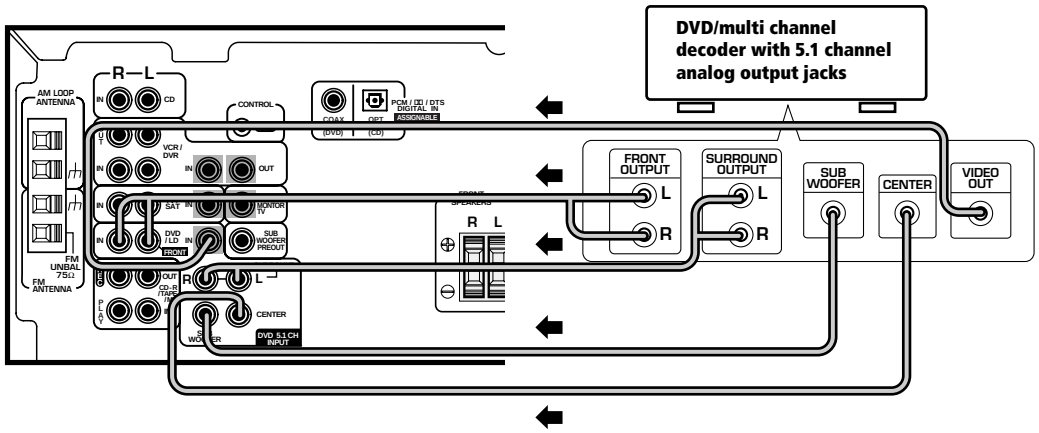
The arrows indicate the direction of the audio signal.



Cassette deck placement
Depending on where the cassette deck is placed, noise may occur during playback of your cassette deck which is caused by leakage flux from the transformer in the receiver. If you experience noise, move the cassette deck farther away from the receiver.

Connecting DVD 5.1 Channel Components

DVD and LD discs are compatible with both 2 channel and 5.1 channel audio output formats. Connections can be made from a DVD, multi-channel decoder equipped with 5.1 analog outputs to the 5.1 analog inputs on this unit. Always make sure that the receiver is switched off and unplugged from the wall outlet before making or changing any connections.

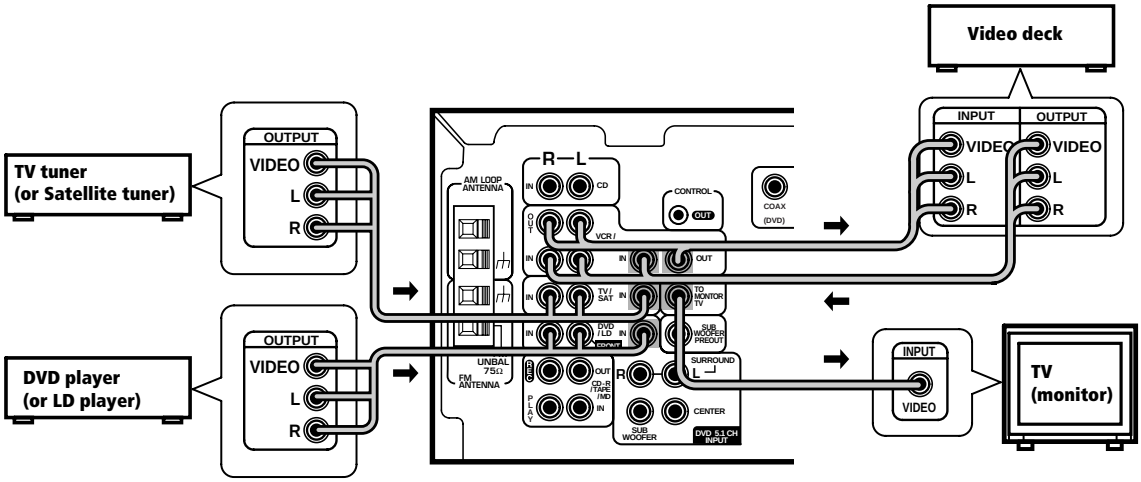


MEMO:

- The 5.1 channel input can only be used when DVD 5.1 CH is selected.

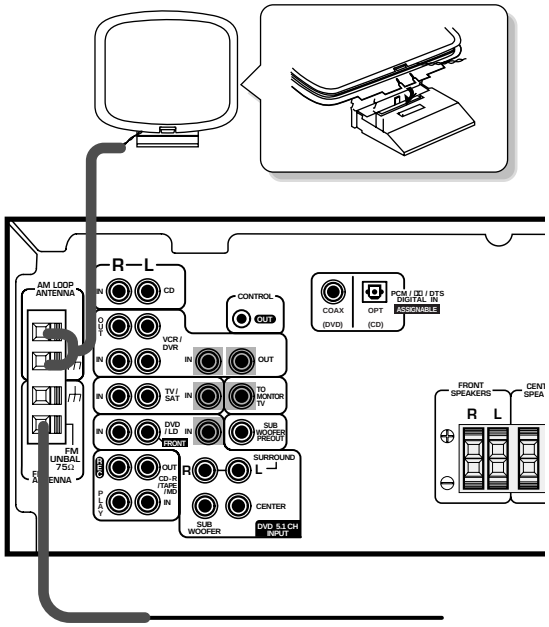
Connecting Video Components

Connect your video components to the jacks as shown below. Regarding digital video components (like a DVD player), you must use the analog connections pictured on this page for the video signal but in order to hear a digital source (like a DVD) you should hook up their audio to a digital input (see page 6). It is also a good idea to hook up your digital components with analog audio connections as well (see page 7).
When connecting your equipment always make sure the power is turned off and the power cord is disconnected from the wall outlet.



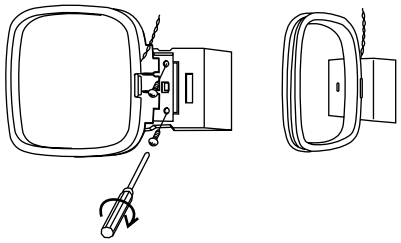
Connecting Antennas

Connect the AM loop antenna and the FM wire antenna as shown below. To improve reception and sound quality, connect external antennas (see Using external antennas, below). Always make sure that the receiver is switched off and unplugged from the wall outlet before making or changing any connections.



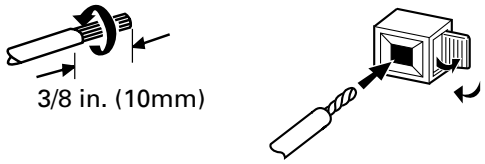
AM loop antenna

Assemble the antenna and connect to the receiver.
Attach to a wall, etc. (if desired) and face in the direction that gives the best reception.



Antenna snap connectors

Twist the exposed wire strands together and insert into the hole, then snap the connector shut.



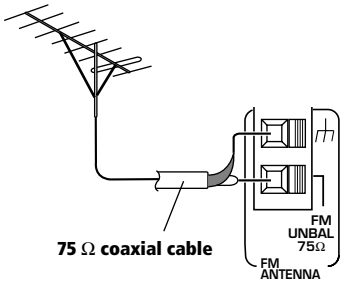
FM wire antenna

Connect the FM wire antenna and fully extend vertically along a window frame or other suitable area, etc.

Using External Antennas

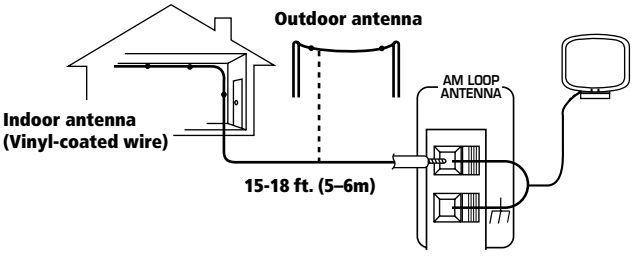
To improve FM reception

Connect an external FM antenna.



To improve AM reception

Connect a 15-18 feet length of vinyl-coated wire to the AM antenna terminal without disconnecting the supplied AM loop antenna.
For the best possible reception, suspend horizontally outdoors.

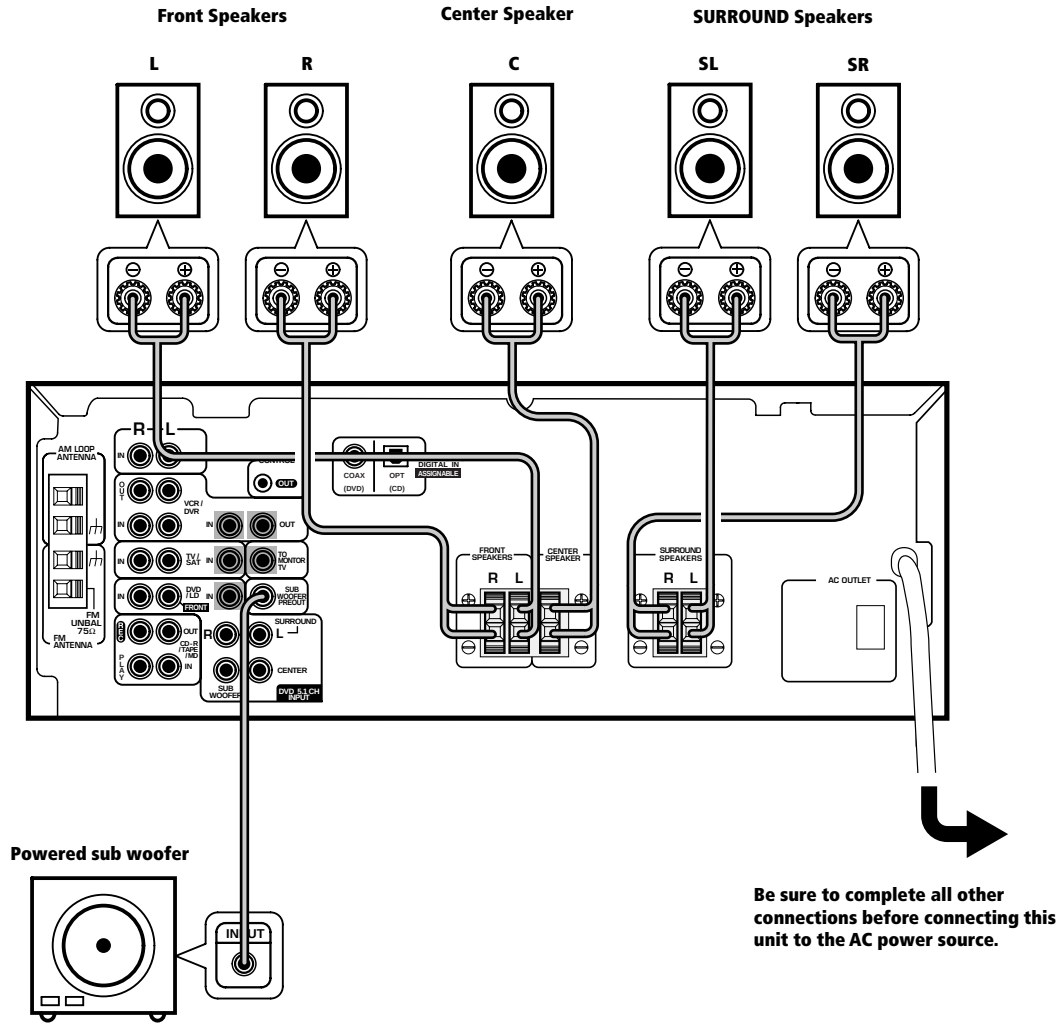


Connecting Speakers

A full complement of six speakers is shown here but, naturally, everyone's home setup will vary. Simply connect the speakers you have in the manner described below. The receiver will work with just two stereo speakers (called "front" speakers in the diagram) but using at least three speakers is recommended, and all five is best.
Make sure you connect the speaker on the right to the right terminal and the speaker on the left to the left terminal. Also make sure the positive and negative (+/–) terminals on the receiver match those on the speakers.

MEMO:

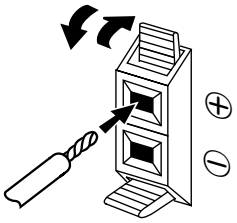
- Use speakers with a nominal impedance of 8 Ω to 16 Ω.



Speaker terminals

Use good quality speaker wire to connect the speakers to the receiver.

1 Twist around 1/2 inch of bare wire strands together.
2 Unclip the speaker terminal and insert the wire.
3 Snap shut the speaker terminal to secure.



Caution:
Make sure that all the bare speaker wire is twisted together and inserted fully into the speaker terminal. If any of the bare speaker wire touches the back panel it may cause the power to cut off as a safety measure.

Hints on speaker placement

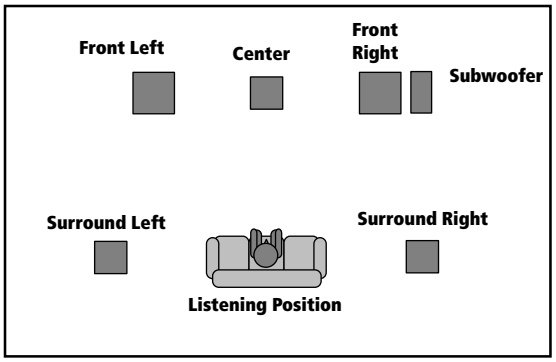
Speakers are usually designed with a particular placement in mind. Some are designed to be floorstanding, while others should be placed on stands to sound their best. Some should be placed near a wall; others should be placed away from walls. Follow the guidelines on placement that the speaker manufacturer provided with your particular speakers to get the most out of them.

- Place the front left and right speakers at equal distances from the TV.
- When placing speakers near the TV, we recommend using magnetically shielded speakers to prevent possible interference, such as discoloration of the picture when the TV is switched on. If you do not have magnetically shielded speakers and notice discoloration of the TV picture, move the speakers farther away from the TV.
- Install the center speaker above or below the TV so that the sound of the center channel is localized at the TV screen.

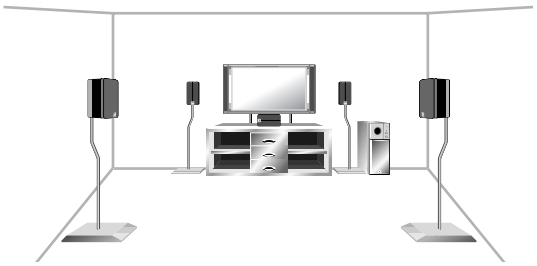
CAUTION!
If you choose to install the center speaker on top of the TV, be sure to secure it with putty, or by other suitable means, to reduce the risk of damage or injury resulting from the speaker falling from the TV in the event of external shocks such as earthquakes.

- If possible, install the surround speakers slightly above ear level.
- Try not to install the surround speakers farther away from the listening position than the front and center speakers. Doing so can weaken the surround sound effect.
- To achieve the best possible surround sound, install your speakers as shown below. Be sure all speakers are installed securely to prevent accidents and improve sound quality.

Overhead view of speaker set up

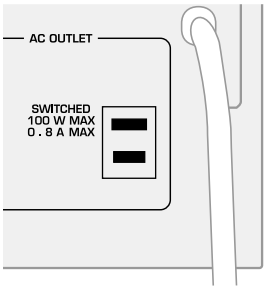


3-D view of speaker set up



AC Outlet [switched 100 W (0.8 A) max]

Power supplied through this outlet is turned on and off by the receiver's **POWER** switch.
Total electrical power consumption of connected equipment should not exceed 100 W (0.8 A).



CAUTION
Do not connect a heater, TV, etc. Also, make sure no exposed speaker wire is touching the rear panel, this may cause the receiver to turn off automatically.

MEMO:
- This unit should be disconnected by removing the power plug from the wall socket when not in regular use, e.g., on vacation.
- Do not connect appliances with high power consumption such as heaters, irons, or television sets to this AC OUTLET in order to avoid overheating and fire risk. This can also cause the receiver to malfunction.

CAUTION:
DO NOT CONNECT A MONITOR OR TV SET TO THIS UNIT'S AC OUTLET.

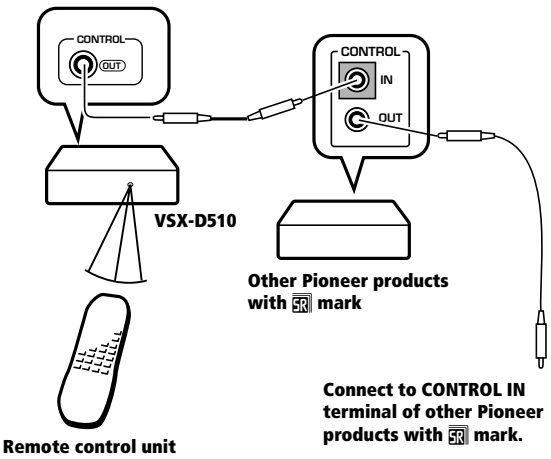
POWER-CORD CAUTION
Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or an electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

Operating Other Pioneer Components

By connecting a control cord (optional), you can control other Pioneer equipment using this remote control unit. Point the remote control unit towards the remote sensor of this unit, even when operating other equipment.

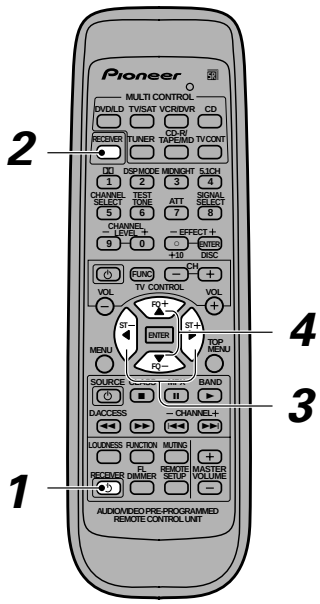
The remote control signals are received by the remote sensor of this unit, and sent to the other devices via the **CONTROL OUT** terminal.

MEMO:
- You can also control Pioneer components by pointing the receiver's remote control directly at the component. This type of operation does not require control cords.



Setting Up for Surround Sound

Switch the power of this unit on (The STANDBY indicator goes out).
To ensure the best possible surround sound, be sure to complete the following set up operations. This is particularly important when using the DD (Dolby) surround mode. You only need to make these settings once (unless you change the placement of your current speaker system or add new speakers, etc.). Refer to the following pages for detailed descriptions of the settings available for each mode.



1 Press ⏻ RECEIVER to turn the power on.

The STANDBY indicator goes out.

2 Press RECEIVER.

This switches the remote to the receiver mode.

3 Press ◁ or ▷ to select the mode you want to set.

For best results, start with "SPEAKERS setting mode" and make your initial adjustments in the order described below.
The current settings are displayed automatically.

- **SPEAKERS (Front, Center, Surround) setting mode (page 14)**
  Use to specify the number and type of speakers you have connected.
- **SUBWOOFER ON/PLUS/OFF setting mode (page 14)**
  Use to specify the subwoofer as on, plus or off.
- **Crossover frequency setting mode (page 14)**
  Use to determine which frequencies will be sent to the subwoofer (or "Large" speakers if you don't have a subwoofer).
- **LFE attenuator setting mode (page 15)**
  Use to specify the peak level for the LFE channel and the crossover network for rerouted bass frequencies.
- **Low cut filter ON/OFF setting mode (page 15)**
  Use to cut the distorted sound from the subwoofer.
- **FRONT speakers distance setting mode (page 15)**
  Use to specify the distance from your listening position to your front speakers.
- **CENTER speakers distance setting mode (page 15)**
  Use to specify the distance from your listening position to your center speaker.
- **SURROUND speakers distance setting mode (page 16)**
  Use to specify the distance from your listening position to your surround speakers.
- **Dynamic range control setting mode (page 16)**
  Use to compress the dynamic range of the sound track.
- **Dual mono setting mode (page 16)**
  Use with DD Digital software that has dual mono encoding if you want to isolate one channel or listen in this specialized mono mode.
- **Coaxial digital input setting (page 17)**
  Use to specify the component to be assigned to the coaxial digital input.
- **Optical digital input setting (page 17)**
  Use to specify the component to be assigned to the optical digital input.

4 Press △ or ▽ to select the setting you want.

The setting is entered automatically.

5 Repeat steps 3 and 4 to set other surround modes.

MEMO:
Press **ENTER** to exit the setting mode.
The setting mode is automatically exited if no operation is performed within 20 seconds.

SPEAKERS (Front, Center, Surround) setting mode

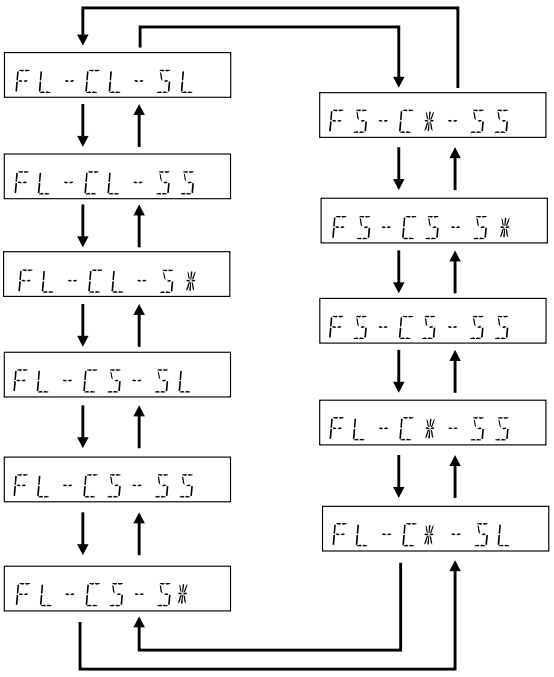
This setting establishes the configuration of the speaker system and size of each set of speakers you have connected. So, for example, here you set whether you have connected surround speakers or not, and how big they are. Selecting "Large" or "Small" will determine how much bass is sent by the receiver to the speakers being set.
In the display, "**F**", "**C**", and "**S**" refer to front, center, and surround speakers respectively. Speaker size is denoted as "**L**" for large speakers, "**S**" for small speakers, and "*****" (asterisk) if no speaker is connected.

MEMO:
If the cone size (diameter) of the speaker is larger than 5 inches, please set to Large.

Choose a speaker setting mode according to the speakers you hooked up. Use the △ or ▽ buttons.

The configurations shown below will appear in the display on the front of the receiver. One of them should match your speaker set up. Cycle through the different possibilities until you find the one that matches your set up.

Press ▷ to advance to the next receiver setting, and press ◁ to return to a previous receiver setting.



SUBWOOFER ON/PLUS/OFF setting mode

Sets whether the SUBWOOFER is used or not. Also, when used you have the option to use the "**PLUS**" setting.

Press △ or ▽ to select subwoofer ON, PLUS or OFF.

MEMO:
- The initial setting is "**ON**".
- Setting the front speaker size to "Small" in the SPEAKERS setting mode automatically locks the subwoofer in the "**ON**" position.
- Use the PLUS for extra bass. When you use **PLUS** you will get the bass sounds from the subwoofer even if the front speakers are set to "Large".

Crossover frequency setting mode

Crossover frequency is the point where the receiver divides the high and low sounds (the frequencies) between the speakers. Since most smaller speakers can't handle deep bass tones, this setting allows you to send those sounds to the subwoofer (or speakers set to "Large" if you don't have a subwoofer) instead of the speakers set to "Small" in your system. Choose the point at which you want the frequency routed to the subwoofer (or "Large" speakers).
We recommend setting this to 200 Hz if smaller bookshelf-type speakers are used for your "Small" speakers.

Press △ or ▽ to specify the crossover frequency for your small speakers (100 Hz, 150 Hz or 200 Hz).

100 Hz
Sends bass frequencies below 100 Hz to the subwoofer (or "Large" speakers).
150 Hz
Sends bass frequencies below 150 Hz to the subwoofer (or "Large" speakers).
200 Hz
Sends bass frequencies below 200 Hz to the subwoofer (or "Large" speakers).

MEMO:
- The initial setting is "**100 Hz**".
- If all speakers (front, center, and surround) are set to "Large" in SPEAKERS setting mode, the crossover frequency cannot be set because there are no "Small" speakers (******* appears in the display).

LFE attenuator setting mode

Dolby Digital and DTS audio sources include ultra-low bass tones. Set the LFE attenuator as needed to prevent the ultra-low bass tones from distorting the sound from the speakers.

Press △ or ▽ to set the attenuation level (0 dB, 10 dB or ∗∗ dB(∞)).

MEMO:
- The initial setting is "**0 dB**".
- When ∞ is selected (****** appears in the display), LFE is not available.

Low cut filter ON/OFF setting mode

Turn the low cut filter **ON** when distorted sound is output through the subwoofer.

Press △ or ▽ to select low cut filter ON or OFF.

MEMO:
- The initial setting is "**OFF**".
- If the SUBWOOFER is set to "**OFF**" in the SUBWOOFER ON/OFF setting mode, the low cut filter cannot be set.

FRONT speakers distance setting mode

Sets the distance from the FRONT speakers to the listening position.

Press △ or ▽ to set the distance of the FRONT speakers from the main listening position (within a 30 foot range).

MEMO:
- The initial setting is 10 ft.
- One step equals about 1ft.

CENTER speaker distance setting mode

The center speaker is normally placed directly in front of the listening room and is thus closer to the listening position than the Front speakers. This means that the sound from the center speaker will be heard before the Front speakers. To prevent this, set the center speaker distance setting to delay the sound from the center speaker so that the sound from the Front and center speakers will be heard at the same time.

Press △ or ▽ to set the distance of the CENTER speaker from the main listening position (within a 30 foot range).

MEMO:
- The initial setting is 10 ft.
- When "**C***" is selected in SPEAKERS setting mode, the center distance cannot be set.
- One step equals about 1 ft.

SURROUND speakers distance setting mode

Use to set the SURROUND speakers distance. Like the CENTER speaker position, the SURROUND speakers may be set in a location closer or farther than the FRONT speakers. Set the distance of the SURROUND speakers accurately to hear sounds coming from both FRONT and SURROUND speakers at the same time.

Press △ or ▽ to set the distance of the SURROUND speakers from the main listening position (within a 30 foot range).

MEMO:
- The initial setting is 10 ft.
- When "**S***" is selected in SPEAKERS setting mode, the SURROUND distance cannot be set.
- One step equals about 1 ft.

Dynamic range control setting mode

Dynamic range is the difference between the loudest and softest sounds in any given signal. The dynamic range control helps you play back sounds so the quieter sounds are audible yet the louder sounds don't get distorted. It does this by compressing the dynamic range, in other words pushing all the sounds towards the same relative volume level. When watching a movie at low volume, setting this function enables low level sounds to be heard more easily but you won't be jolted by louder sounds.

Press △ or ▽ to set the dynamic range control (OFF, MAX, or MID).

MEMO:
- The initial setting is "**OFF**".
- When the volume level is increased, set to "**OFF**".
- For listening enjoyment at low volumes, set to "**MAX**" for maximum dynamic range compression.
- Dynamic range control is effective only when a Dolby Digital signal is being played back.

Dual mono setting

The dual mono setting can only be used when listening to Dolby Digital discs that have dual mono software encoded in them. As of now these are not that widely used. With this setting you can choose which channel in the dual mono setting you want to listen to. Thus, it is useful for soundtracks that have one language on one channel and a different language on the other. Remember you can only use this setting if you have Dolby Digital software with this feature and want to isolate one of the channels therein.

There are two different ways to route the sound in the dual mono setting, one is with Dolby Digital mode on, the other with Dolby Digital mode off. If Dolby Digital mode is switched on, the **ch1** setting will play channel 1 through your center speaker, the **ch2** setting will play channel 2 through your center speaker. With Dolby Digital mode off, the dual mono sound routing is as follows: In the **ch1** setting your will hear channel 1 out of both front speakers. In the **ch2** setting you will hear channel 2 out of both speakers. In the **L. c1 R. c2** setting the speakers will play the soundtrack independently of each other. The left front speaker will play channel 1 and the right front speaker will play channel 2.

Press △ or ▽ to cycle through the possible DUAL MONO settings.

MEMO:
- The default setting of this feature is **ch 1**.

Coaxial digital input setting

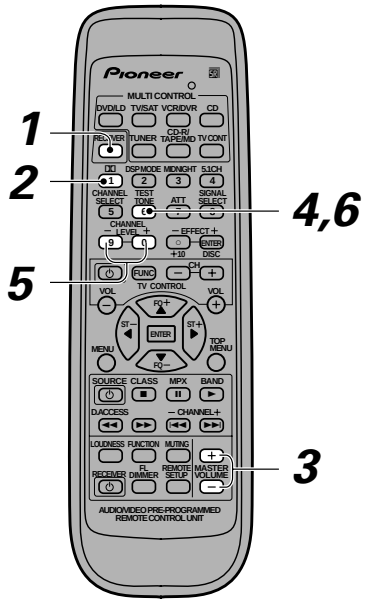
Here you tell the receiver what component you have hooked up to the coaxial digital input jack.

Press △ or ▽ to select the coaxial digital input (DVD, TV, CD, CD-R, VCR or OFF).

After you assign a component to the digital jack, whenever you select that component, for example a DVD player, the receiver will automatically change to the digital input setting. You can see this in the DIGITAL/ANALOG indicator on the front of the receiver.

MEMO:

- The initial setting is "**DVD**".



Optical digital input setting

Here you tell the receiver what component you have hooked up to the optical input jack.

Press △ or ▽ to select the optical digital input (DVD, TV, CD, CD-R, VCR, or OFF).

After you assign a component to the digital jack, whenever you select that component, for example a DVD player, the receiver will automatically change to the digital input setting. You can see this in the DIGITAL/ANALOG indicator on the front of the receiver.

MEMO:

- The initial setting is "**CD**".

Setting the Volume Level of Each Channel (adjusting the speaker volume balance)

Use to set the relative volume of each channel.

1 **Press RECEIVER.**

This switches the remote to the receiver mode.

2 **Press ◻◻.**

3 **Press VOL + or – to adjust the volume to an appropriate level.**

4 **Press TEST TONE to output the test tone.**

The test tone is output in the following order. (depending on the speaker setting mode)

- Test tone is only output in Dolby/DTS modes.

5 **Adjust speaker levels so that you hear the test tone at the same volume from each speaker when seated in the main listening position.**

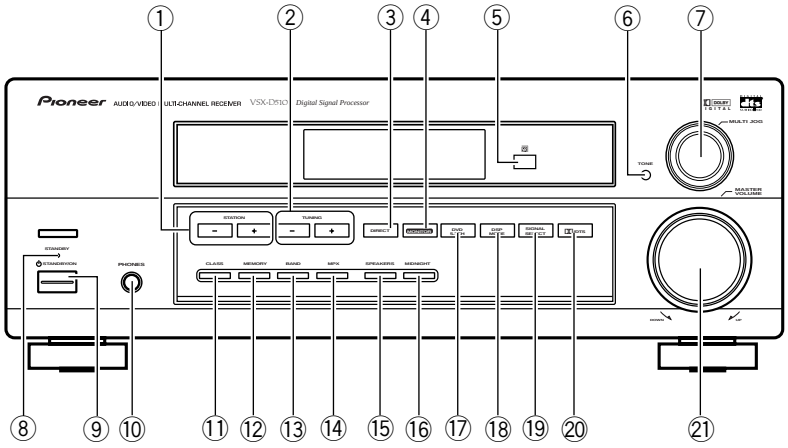
- The channel level range is ± 10 dB.
- Levels can be set for each surround mode.

6 **Press TEST TONE to turn off the test tone.**

MEMO:

- Since the SUBWOOFER transmits an ultra-low frequency its sound may seem quieter than it actually is.
- The speaker volume can be adjusted without outputting the test tone by pressing **CHANNEL LEVEL** or **CHANNEL SELECT**.
- Initial setting is 0 dB.

Front Panel



① **STATION (+/–) buttons (see page 27)**
Selects station memories when using the tuner.

② **TUNING buttons (see page 26)**
Selects the frequency when using the tuner.

③ **DIRECT button**
Use to switch DIRECT playback on or off. This mode bypasses the tone controls and channel levels for the most accurate reproduction of a source.

④ **MONITOR button**
Press to switch tape monitoring on/off.

⑤ **Remote sensor**
Receives the signals from the remote control.

⑥ **TONE button**
Press this button to access the bass and treble controls, which you can then adjust with the **MULTI JOG dial**.

⑦ **MULTI JOG DIAL**
The Multi Jog dial performs a number of tasks. Use it to select the function (like DVD or CD) that you want to play. You can also use it, after pressing the **TONE** button to increase or decrease the amount of bass or treble.

⑧ **STANDBY indicator**
Lights when the receiver is in standby mode (note that the receiver consumes a small amount of power (1W) in standby mode).

⑨ **⏻ STANDBY/ON button**
Switches the receiver between on and standby.(note that the receiver consumes a small amount of power (1W) in standby mode).

⑩ **PHONES jack**
Use to connect headphones. (Use the **SPEAKER** button to turn off the speakers if you want to mute the sound from the speakers.)

⑪ **CLASS button (see page 27)**
Switches between the three banks (classes) of station memories.

⑫ **MEMORY button (see page 27)**
Press to memorize a station for recall using the **STATION (+/–)** buttons.

⑬ **BAND button**
Switches between station AM and FM radio bands.

⑭ **MPX button (see page 26)**
If the **TUNED** or **STEREO** indicators don't light when tuning to an FM station because the signal is weak, press the **MPX** button to switch the receiver into mono reception mode. This should improve the sound quality and allow you to enjoy the broadcast.

⑮ **SPEAKER button**
Use to switch the speaker system between **A** (on) and **off**.

⑯ **MIDNIGHT button (see page 24)**
Use when listening to movie soundtracks at low volume. This feature will enable you to hear quiet sounds and not get jolted by loud or sudden sound effects.

⑰ **DVD 5.1ch button**
Use this button to switch between a DVD player hooked up to the digital inputs and a 5.1 ch external decoder hooked up to the 5.1 ch analog inputs.

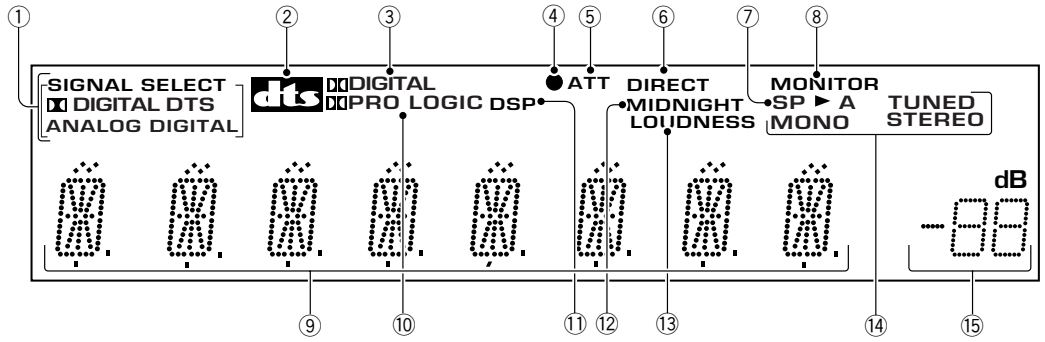
⑱ **DSP MODE button (see page 24)**
Use to switch between the various DSP modes available (**HALL1, HALL 2, JAZZ, DANCE, THEATER1, THEATER 2**) and **DSP off**. Use to create different surround sound effects from any stereo source.

⑲ **SIGNAL SELECT button (see page 23)**
Use to select between an analog or digital signal.

⑳ **DD /DTS button (see pages 23, 25)**
Use to switch between the various Dolby/DTS surround modes.

㉑ **MASTER VOLUME**
Use to set the overall listening volume.

Display



① **SIGNAL SELECT indicators**
Lights to indicate the type of input signal assigned for the current component :
DIGITAL : Lights when a DOLBY DIGITAL signal is played.
DTS : Lights when a source with DTS audio signals is played.
ANALOG : Lights when an analog signal is selected.
DIGITAL : Lights when a digital audio signal is selected.

② **DTS indicator**
Lights when DTS mode is being used.

③ **DIGITAL indicator**
When the DOLBY)/DTS mode of the receiver is on, this lights to indicate playback of a Dolby Digital signal. However, PRO LOGIC lights during two channel playback of Dolby Digital.

④ **OVERLOAD indicator**
This lights when an analog signal is too high (the SIGNAL SELECT would have to be on ANALOG). It indicates the sound is distorting and the input signal should be reduced.

⑤ **ATT indicator**
Lights when ATT is used to attenuate (reduce) the level of the input signal (can only be used in ANALOG mode).

⑥ **DIRECT indicator**
Lights when source DIRECT is in use. This function bypasses all tone, balance, DSP and Dolby Surround effects.

⑦ **SPEAKER indicator**
Shows if the speaker system is on or not. SP ►A means speakers are switched on. SP ► means speakers are switched off.

⑧ **MONITOR indicator**
Lights when **MONITOR** is selected. Used to hear a recording as it's being made (see page 28).

⑨ **CHARACTER display**
Shows the radio frequency or function (DVD/LD, CD, etc.) receiver is using .

⑩ **PRO LOGIC indicator**
When the (DOLBY)/DTS mode of the receiver is on, this lights to indicate playback of a two channel source.

⑪ **DSP indicator**
Lights when any Advanced Theater or DSP mode is selected.

⑫ **MIDNIGHT indicator**
Lights when MIDNIGHT listening mode is in use.

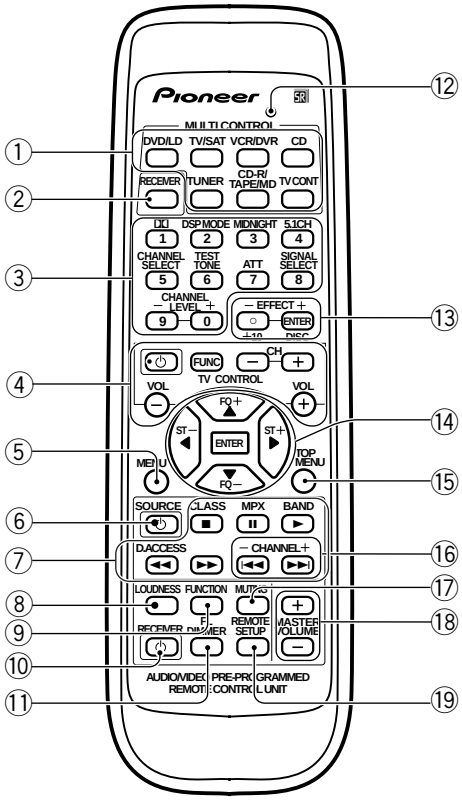
⑬ **LOUDNESS indicator**
Lights when the LOUDNESS is on. Use to boost the bass and treble at low volume.

⑭ **TUNER indicators**
MONO:
Lights when the mono mode is set using the **MPX** button.
TUNED:
Lights when a broadcast is being received.
STEREO:
Lights when a stereo FM broadcast is being received in auto stereo mode.

⑮ **MASTER VOLUME LEVEL**
Shows the overall volume level. Volume level is maintained even when the power is off. **---dB** indicates the minimum level, and **0dB** indicates the maximum level.

- Depending on the level settings you make for individual channels, the MAX level can range between –10dB and 0dB.

Remote Control



① **MULTI CONTROL buttons**
Use to put the receiver/remote control in the stated mode.
For other equipment controls, see Controlling the Rest of Your System on pages 31-32.

② **RECEIVER button (see page 13)**
Use this button when setting up the surround sound for the receiver.

③ **NUMBER/MODE buttons (see pages 26, 31, 32)**
Use the number buttons to select the radio frequency in tuner DIRECT ACCESS mode or the tracks in CD, DVD mode etc.

Also, buttons marked with the following names have special functions. If you try to use one of these functions but the display flashes it means that function cannot be used in the current mode (for example DSP modes cannot be used when 5.1 CH setting is on).

DD (see pages 17, 25)
Use to put receiver in DOLBY DIGITAL, DOLBY SURROUND and DTS modes. To use first press the **RECEIVER** button then operate this button.

DSP mode (see pages 24)
Use to put receiver in one of the DSP modes. To use first press the **RECEIVER** button then operate this button.

MIDNIGHT (see page 24)
Use to put receiver in MIDNIGHT mode. To use first press the **RECEIVER** button then operate this button.

5.1 ch (see page 24)
When the DVD/LD or DVD 5.1 CH function is selected each press switches the DVD/LD input between DVD/LD and DVD 5.1 CH. To use first press the **RECEIVER** button then operate this button.

CHANNEL SELECT (see page 17-memo)
Use to select a speaker when setting up the surround sound of the receiver. To use first press the **RECEIVER** button then operate this button.

TEST TONE (see page 17)
Use to sound the TEST TONE when setting up the surround sound of the receiver. To use first press the **RECEIVER** button then operate this button.

ATT
If the Overload indicator lights often, use to attenuate (lower) the level of an analog input signal to prevent distortion. To use, press the **RECEIVER** button first, then press this button.

CHANNEL LEVEL +/– (see page 17-memo)
Use to set up the levels of the surround sound of the receiver. To use first press the **RECEIVER** button then operate this button.

SIGNAL SELECT (see page 23)
Use to select the proper signal (analog, digital) for the source your are inputting. To use first press the **RECEIVER** button then operate this button.

④ **THE FOLLOWING FOUR SETS OF BUTTONS ARE DEDICATED TV CONTROL. THEY ARE ONLY USED FOR CONTROLLING YOUR TV.**

FUNC button
Use select the TV function.

TV POWER button
Use to turn on the power of the TV.

TV CHANNEL +/– buttons
Use to change channels on your TV.

TV VOLUME +/– buttons
Use to adjust the volume on your TV.

⑤ **MENU button**
Use to access different menus associated with your DVD player.

⑥ **SOURCE button**
Use to turn on/off the components connected to the receiver.

⑦ **THE FOLLOWING BUTTONS ARE BOTH CONTROLS FOR OTHER COMPONENTS (LIKE A DVD PLAYER) AND DEDICATED TUNER CONTROLS. THE TUNER CONTROLS ARE EXPLAINED HERE. YOU CAN USE THEM AFTER YOU HAVE PUSHED THE TUNER MULTI CONTROL BUTTON.**

CLASS button (see page 27)
Use to switch between the three banks (classes) of station memories.

MPX MODE button (see page 26)
Use to switch between auto stereo and mono reception of FM broadcasts. If the signal is weak then switching to MONO will improve the sound quality. Also, this is the pause button for CDs, tapes, DVDs, etc.

BAND button (see page 26)
Use to switch between the AM and FM band when in TUNER mode.

D. ACCESS button (see page 26)
Use to directly access a radio station by pressing the number of the station you want.

⑧ **LOUDNESS button**
Use to switch on the loudness. This feature is useful for getting good bass and treble sounds listening at low volumes.

⑨ **FUNCTION button**
Use to select the playback or recording source. This button lets you cycle through the different functions of the receiver in the following order: CD, tuner, CDR/TAPE, VCDR/DVR, DVD/LD, DVD 5.1 CH., and TV/SAT.

⑩ **RECEIVER ⏻ (POWER) button**
This switches between STANDBY mode and power ON for this receiver.

⑪ **FL DIMMER button**
Use this button to make the fluorescent display (FL) dimmer or brighter. There are three brightness settings as well as an off setting.

⑫ **LED DISPLAY**
This display flashes when a command is sent from the remote control to the receiver. It also flashes at other times, for example when teaching the receiver preset codes with specific meanings.

⑬ **EFFECT +/– buttons**
Use to add or subtract the amount of effect in different DSP sound modes or advanced listening modes.

⑭ **◄► (ST +/–) ▲▼ (FQ +/–) & ENTER buttons (see pages 13-17, 26, 27, 31-32)**
Use these arrow buttons when setting up your surround sound system. These buttons are also used to control DVD menus/options and for deck 1 of a double cassette deck player. The **FQ +/–** buttons can be used to find radio frequencies. The **ST +/–** buttons can be used to select the stations of memorized radio frequencies.

⑮ **TOP MENU button**
In DVD mode this button brings you to the top or most fundamental menu.

⑯ **CHANNEL +/– buttons**
Use to select the stations of memorized radio frequencies. Also use to skip tracks backward or forward on CDs, DVDs, etc.

⑰ **MUTING button**
Use to mute the sound or restore the sound if it has been muted.

⑱ **MASTER VOLUME +/– buttons**
Use to set the overall listening volume.

⑲ **REMOTE SETUP button (see pages 29-30)**
Use this button when setting up the remote control to control other components.

Learning about the Sound Modes

The sound modes are explained here.
There are two cinema modes: STANDARD, and ADVANCED THEATER. These are designed to be used with multi channel surround sound audio/visual sources (like DVDs and LDs). Intrinsic to home theater, these modes can deliver realistic and powerful surround sound that recreates the movie theater experience. You may need to experiment with them to see which settings suit your home system and personal tastes.
The DSP and STEREO modes are designed to be used with music sources but some DSP modes are also suited for film soundtracks. Again, try different settings with various soundtracks to see which you like.

STANDARD mode

This mode is for pure decoding of Dolby Digital, DTS and Dolby Surround soundtracks. No special effects are added. It is good for enjoying movies that have been recorded in Dolby Digital, DTS or Dolby Surround.
You can identify Dolby Digital software by the DOLBY DIGITAL or DOLBY SURROUND AC-3 DIGITAL marks. Most Dolby Surround software is marked DOLBY SURROUND, but unmarked software may also incorporate Dolby Surround.

ADVANCED THEATER modes

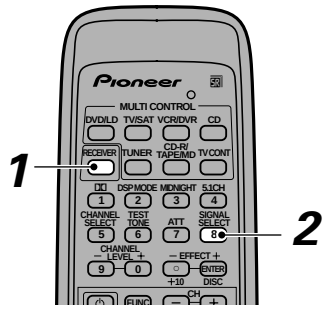
MUSICAL
Simulates the acoustic environment of a large concert hall and is suitable for music or musical sources marked DOLBY DIGITAL (DOLBY SURROUND AC-3 DIGITAL) or DIGITAL dts SURROUND.
DRAMA
Simulates the relaxed environment of a classic medium size movie theater, and is suitable for watching dramas on sources marked DOLBY DIGITAL (DOLBY SURROUND AC-3 DIGITAL) or DIGITAL dts SURROUND.
ACTION
Simulates the acoustic environment of a modern large movie theater. You can enjoy the power and dynamics of motion picture audio which is suitable for action movies on sources marked DOLBY DIGITAL , DOLBY SURROUND AC-3 DIGITAL or DIGITAL dts SURROUND.
EXPANDED
This mode is especially designed to give sound depth to stereo sources. The overall effect builds a dynamic and broad sound space, allowing two-channel (stereo) signals to faithfully imitate a five speaker sound. Use with Dolby Pro Logic for a stereo surround effect. You can also use with Dolby Digital sources for a wider stereo field than STANDARD mode.

DSP modes

The DSP (Digital Signal Processing) modes allow you to transform your living room into a variety of different sonic environments when playing standard (two-channel) stereo sources, Dolby Pro Logic sources, and Dolby Digital sources. DSP function does not work with the speakers set to off.
HALL 1
Simulates the acoustic environment of a large wooden concert hall. Complex delay of reflected sounds coupled with reverberation effects create a dynamic and beautiful sound characteristic of an orchestra performing in a concert hall, making it suitable for classical music
HALL 2
Simulates the acoustic environment of a stone concert hall. The rich reverberations and natural fullness of the sound create the auditory impression of being in a concert hall, making it suitable for classical music.
JAZZ
Simulates the acoustic environment of a jazz club. Less delay on the reflected sounds emphasizes the sensation of hearing a live band.
DANCE
Simulates the acoustic environment and strong bass sound of a nightclub. A short delay on the reflected sounds emulates the raw power of dance music.
THEATER 1
Adjusts the delay of the reflected sound to simulate the acoustic environment of a medium sized movie theater.
THEATER 2
Simulates the acoustic environment of a theater while maintaining proper localization of each channel.

Switching ANALOG/DIGITAL Signal Input

When you select a function (for example CD) that is only hooked up by a digital connection, then the ANALOG/DIGITAL signal input switch will automatically choose digital. If you have that function hooked up by both digital and analog connections this switch lets you choose which to listen to.



1 **Press RECEIVER.**

This switches the remote to the surround setup mode.

2 **Press SIGNAL SELECT to select the input signal corresponding to the source component.**

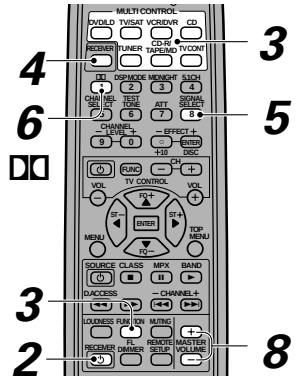
Each press switches between ANALOG and DIGITAL signal selection.

3 **While SIGNAL SELECT is set to DIGITAL, DIGITAL lights when a Dolby Digital signal is input, DTS lights when a DTS signal is input.**

MEMO:

- SIGNAL SELECT is fixed in the "ANALOG" position for components not assigned to one of the two digital input jacks.
- This receiver can only play back Dolby Digital, PCM (32kHz, 44kHz, and 48kHz), DTS, digital signal formats. With digital signal formats other than these, set SIGNAL SELECT to "ANALOG".
- When a LD or CD player compatible with DTS is played back with SIGNAL SELECT set in "ANALOG", digital noise may be output by playing back the DTS directly (no decoding). To prevent noise, you need to make digital connections (Refer to page 6) and set SIGNAL SELECT to "DIGITAL".
- Some DVD players don't output DTS signals. For more details, refer to the instruction manual supplied with your DVD player.

Playing Sources with Dolby Digital or DTS Sound



1 **Turn on the power of the playback component.**

2 **Turn on the power of the receiver.**

Be sure that the standby indicator turns off on the front panel.

3 **Press a MULTI CONTROL button to select the source you want to playback.**

If the DIRECT FUNCTION is OFF you have to use the **FUNCTION** button to select the source (see p. 30).

4 **Press RECEIVER.**

Then set the remote to select the sound mode.

5 **Press SIGNAL SELECT to select DIGITAL.**

(Refer to "Switching ANALOG/DIGITAL signal input" on this page.)

6 **Press to switch the Dolby/DTS mode on.**

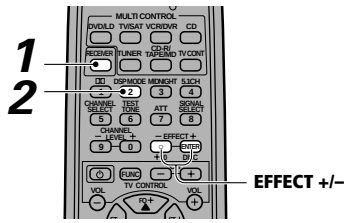
7 **Start playback of the component you selected in step 1.**

8 **Press MASTER VOLUME (+/–) to adjust the volume level.**

Selecting a Sound Mode

To ensure the best possible surround sound, be sure to complete the set up procedures described in "Setting Up for Surround Sound" (starting on page 13) before using the sound modes. This is particularly important when using the DD (Dolby) surround mode.

Surround operation



1 **Press RECEIVER.**

This sets the remote to select the sound mode.
(You can skip this step when using the controls on the receiver.)

2 **Press DSP MODE to select the sound mode.**

Each press changes the DSP mode as follows:

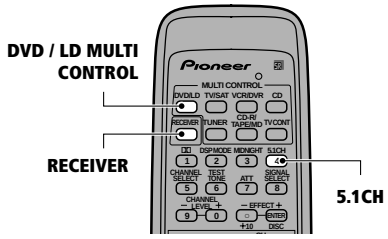
HALL 1 → HALL 2 → JAZZ → DANCE
(OFF) ← THEATER 2 ← THEATER 1

MEMO:

- The amount of effect of each DSP mode can be adjusted in the range of 10 to 90 (the default setting value is 70) by pressing **EFFECT +/–**.

DVD 5.1 ch. input playback

Connect a DVD player with 5.1 channel output to enjoy the surround sound created by 5.1 channel playback.



There are two ways to switch on DVD 5.1 CH mode. With the remote control press the DVD/LD MULTI CONTROL button. Then press the RECEIVER button and number button 4 (5.1CH). On the main unit simply press the DVD 5.1CH button.

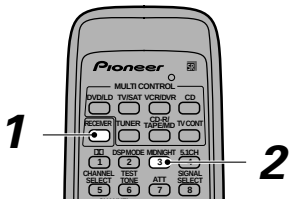
Press number button 4 (5.1CH) on the remote to go back to the DVD/LD mode. To exit this mode using the main unit simply press other function button (DVD/LD, etc.).

MEMO:

- When 5.1 ch input is selected, Dolby mode, DSP mode, SIGNAL SELECT, ATT, DIRECT, TONE, MIDNIGHT mode and LOUDNESS cannot be operated.
- When 5.1ch input is selected, only the volume level and channel levels can be set.

MIDNIGHT Listening Mode

When the volume is low, surround effects tend to become less than satisfactory. Turn the MIDNIGHT listening mode on to enjoy the effects of quality surround sound even at low volumes. This mode allows you to hear effective surround sound of movies at low volume levels.



1 **Press RECEIVER.**

This sets the remote to select the sound mode.
(You can skip this step when using the controls on the receiver.)

2 **Press MIDNIGHT.**

Each press switches MIDNIGHT listening mode on or off.

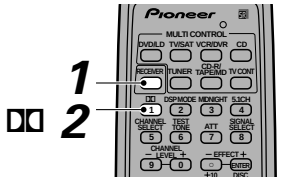
MEMO:

- The effect automatically adjusts according to the volume level.

ADVANCED THEATER Mode (Dolby/DTS mode)

Switch on the Dolby/DTS mode by pressing the DOLBY button. When Dolby/DTS mode is ON, Dolby Pro Logic, Dolby Digital and DTS, and signal processing is performed automatically corresponding to the input signal. Use this button to cycle through the various modes.

When the standard mode is selected, DSP modes are off.



1 **Press RECEIVER.**

This sets the remote to select the sound mode. **(Skip this step when using the controls on the receiver.)**

2 **Switch the Dolby/DTS mode on and off by pressing DOLBY on the remote control or DOLBY/ DTS on the front panel.**

Each press changes the display as follows.

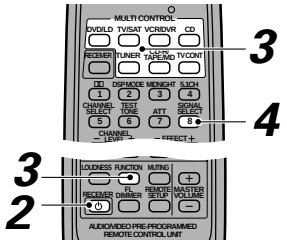
STANDARD → MUSICAL → DRAMA
(OFF) ← EXPANDED ← ACTION

Refer to page 22 for more details about each surround effect.

MEMO:

- The effects of Dolby/DTS mode can be adjusted in the range of 10 to 90 by pressing **EFFECT +/–** (the default setting is 70). Also, the effect level can be set in each ADVANCED THEATER mode by pressing the **EFFECT +/–** button. The STANDARD mode cannot be changed.

Playing Other Sources



1 **Turn on the power of the playback component.**

2 **Turn on the power of the receiver.**

Be sure that the standby indicator turns off on the front panel.

3 **Press a MULTI CONTROL button to select the source you want to playback.**

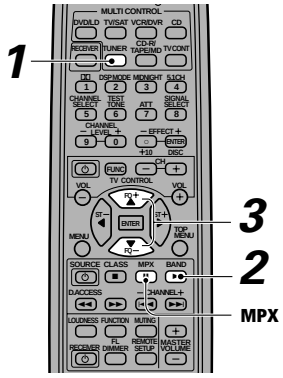
If the DIRECT FUNCTION is OFF you have to use the **MULTI JOG dial** to select the source (see p.18, #7).

4 **If necessary, press SIGNAL SELECT to select the input signal corresponding to the source component.**

5 **Start playback of the component you selected in step 1.**

Finding a Station

The following steps show you how to tune in to FM and AM radio broadcasts using the automatic (search) and manual (step) tuning functions. If you already know the exact frequency of the station you want to listen to, see Tuning Directly to a Station below. Once you are tuned to a station you can memorize the frequency for recall later—see Memorizing Stations on page 27 for more on how to do this.



1 **Press the MULTI CONTROL TUNER button on the remote control or turn the MULTIJOG DIAL on the receiver to select the tuner mode.**

2 **Use the BAND button to change the band (FM or AM), if necessary.**

Each press switches the band between FM and AM.

3 **Tune to a station.**

Automatic tuning
To search for stations in the currently selected band, press and hold either the **FQ. +** or **FQ. –** button for about a second. The receiver will start searching for the next station, stopping when it has found one. Repeat this step to search for other stations.

Manual tuning
To change the frequency one step at a time, press the **FQ. + / FQ. –** (▲▼) buttons.

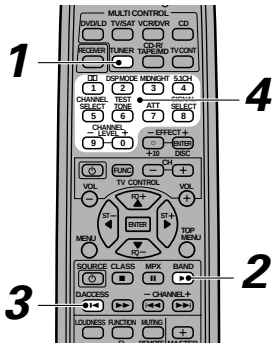
High speed tuning
Press and hold the **FQ. +** or **FQ. –** button for high speed tuning, releasing the button once the desired frequency is reached.

MPX mode

If the **TUNED** or **STEREO** indicators don't light when tuning to an FM station because the signal is weak, press the **MPX** button to switch the receiver into mono reception mode. This should improve the sound quality and allow you to enjoy the broadcast.

Tuning Directly to a Station

Sometimes, you'll already know the frequency of the station you want to listen to. In this case, you can simply enter the frequency directly using the number buttons on the remote control (this function is not available using the front panel controls of the receiver).



1 **Press the MULTI CONTROL TUNER button on the remote control or turn the MULTIJOG DIAL on the receiver to select the tuner mode.**

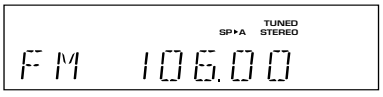
2 **Press the BAND button to select either FM or AM.**

Each press switches the band between FM and AM.

3 **Press D.ACCESS (DIRECT ACCESS).**

4 **Use the number buttons to enter the frequency of the radio station.**

Example: To tune to 106.00 (FM), press **1** – **0** – **6** – **0** – **0**

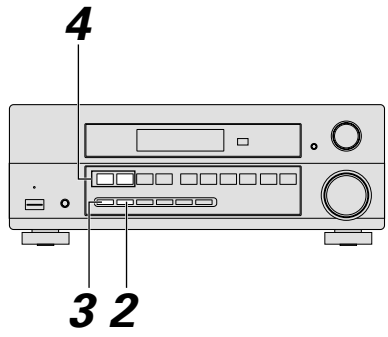


MEMO:

- If you make a mistake while inputting the frequency, press the **D.ACCESS** button twice to cancel the frequency and start again.

Memorizing Stations

If you often listen to a particular radio station, it's convenient to have the receiver store the frequency for easy recall whenever you want to listen to that station. This saves the effort of manually tuning in each time. The VSX-D510 can memorize up to 30 stations, stored in three banks, or classes, (A, B and C) of 10 stations each. When memorizing FM frequencies, the receiver also stores the MPX setting (auto stereo or mono, see p.26). The process for memorizing stations is only possible from the controls on the front panel of the receiver.

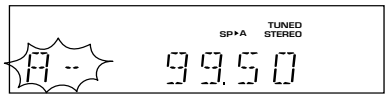


1 Tune to a station you want to memorize.

See Finding a Station and Tuning Directly to a Station, on pages 26 and this page, for more on how to do this.

2 Press MEMORY.

The display shows a blinking memory class.



3 Press CLASS to select one of the three classes.

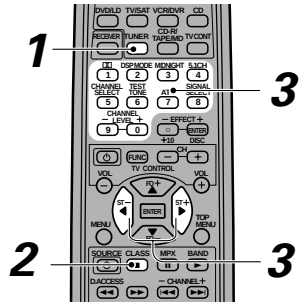
Repeatedly pressing this button cycles through the three available classes, A, B and C.

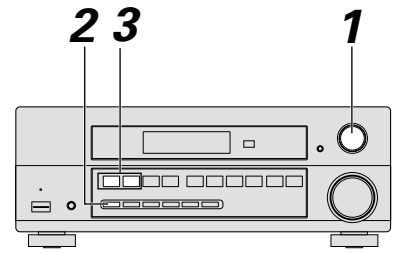
4 Press STATION +/– to select the desired station memory number.

Pressing these buttons repeatedly cycles through the 10 available station memories in each class.
After choosing the location you want, the preset class and number blink for about 5 seconds and the receiver stores the station.
Repeat steps 1 to 4 to memorize up to 30 stations.

Recalling Memorized Stations

Having memorized up to 30 stations (see this page for how to do this), preset stations can be easily recalled.





1 Press the MULTI CONTROL TUNER button on the remote control or turn the MULTIJOG DIAL on the receiver to select the tuner mode.

2 Press CLASS to select the class in which the station is stored.

Repeatedly pressing this button cycles through the three available classes, A, B and C.

3 Use the STATION +/– buttons to select the station memory in which the station is stored.

Alternatively, recall the station memory using the number buttons on the remote control.

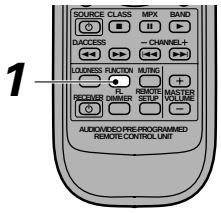
MEMO:

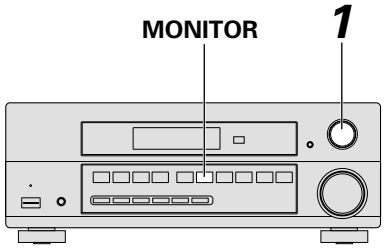
- If the receiver is left disconnected from the AC power outlet for a lengthy period, the station memories will be lost and will have to be reprogrammed.

Making an Audio or a Video Recording

The following steps show you how to make an audio or a video recording from the built in tuner, or from an audio or video source connected to the receiver (such as a CD player or TV). Recordings can be made to a CD-Recorder, cassette deck, MD, VCR, or DVR deck connected to the CD-R/TAPE/MD, VCR or DVR in/out connectors.

MEMO:
The receiver's volume, balance, tone (bass, treble, loudness), and surround effects have no effect on the recorded signal.





1 **Turn the MULTIJOG DIAL on the receiver or press the FUNCTION button on the remote control to select a source to record (you can also use the MULTI CONTROL buttons on the remote control to select a source).**

All functions except MONITOR are accessible from the remote control.

2 **Prepare the program source.**

Tune to the radio station, load the CD, etc. For a video recording load the video, DVD etc.

3 **Insert a blank tape, MD, video etc. into the recording device connected to either CD-R/MD/TAPE or VCR/DVR and set the recording levels.**

Refer to the instructions that came with the recorder if you are unsure how to do this. Most video recorders set the audio recording level automatically—check your video's instruction manual if you are unsure whether yours has manual controls.

4 **Start recording, then start playback of the source component.**

Record MONITOR

You can listen to (monitor) the recording as it's being made using the **MONITOR** button on the front panel (a cassette deck would have to have a record monitor function).
Press the **MONITOR** button to switch between the recorded signal and the original source signal.

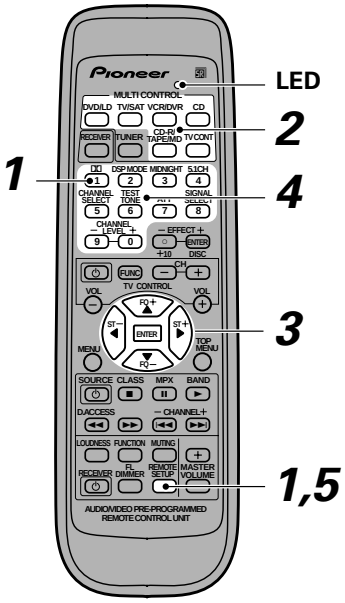
Setting Up the Remote Control

Recalling preset codes

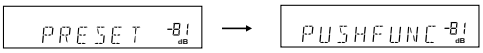
The following steps show you how to recall preset codes for each **MULTI CONTROL** button. Once the preset code is assigned, pressing the button will automatically set the remote to operate the respective component.

MEMO:

- Refer to "Preset Code List" on page 33 for the components and manufacturers available.
- Refer to "Controlling the Rest of Your System" on pages 31-32 for detailed explanations on how to operate your other components.



1 Press REMOTE SET UP and 1 at the same time to select the preset mode.



The LED on the remote control starts to blink.
To cancel the preset mode at any time
Press **REMOTE SET UP**.

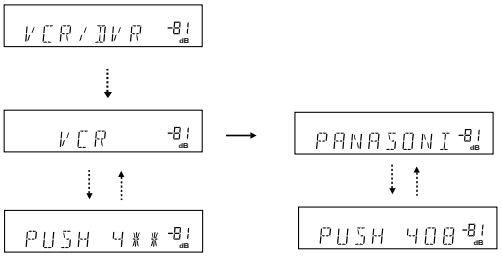
2 Press the MULTI CONTROL button for the component you want to control.

Each button can be set to control one of the following components

DVD/LD	:	DVD or LD player
TV/SAT	:	TV or Satellite tuner
VCR/DVR	:	VCR or Digital Video Recorder
CD	:	CD player
CD-R/TAPE/MD	:	CD Recorder or Tape deck or MD player
TV CONT	:	TV or Cable TV tuner

The LED lights steadily and the first manufacturer (and preset code(s)) appear in the display.
If no commands are entered the receiver automatically exits the preset code mode after 20 seconds.

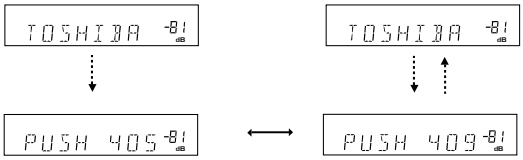
3 Press △ or ▽ repeatedly to display the name of the component's manufacturer.



If necessary, press ◁ or ▷ to see if an alternative code from the same manufacturer is available.
A list of all available preset codes is provided on page 33.
If no commands are entered the receiver automatically exits the preset code mode after 20 seconds.

4 Point the remote toward the component to be controlled, enter the 3 digit setup code.

When you enter the setup code, the remote emits a power ON/OFF signal. If the component turns ON or OFF, you have entered the proper code.
If the component does not turn ON or OFF and there is more than one setup code, press ◁ or ▷ to select another code in step 3 or try inputting another code (starting again from step 2).
Some manufacturers use several sets of remote control signals and the first code may not correspond to your component.



Repeat steps 2 through 4 to assign preset codes for as many components as necessary.

5 Press REMOTE SET UP to exit the preset mode.

The remote control returns to the previous operation mode.

MEMO

- When operating a PIONEER DVD/LD player, set the manufacturer code to "**111**" in the preset mode.
- All codes enrolled in the manufacturer code list can be set even if a code is not displayed.
- TUNER cannot be preset.
- If no commands are entered the receiver automatically exits the preset code mode after 20 seconds.

Clearing All the Remote Control Settings

Clears all presets and restores factory default settings.

1 **Press and hold REMOTE SETUP and 0 at the same time for more 3 seconds.**

The LED display at the top of the remote control will blink. After blinking three times, all the settings will be cancelled.

Direct Function (MULTI CONTROL)

The direct function is a useful feature which allows you keep the receiver in one function (for example, controlling your CD player) while putting the remote control in a different function. This could let you, for example, use the remote control to set up and listen to a CD on the receiver and then use the remote control to rewind a tape in your VCR while you continue to listen to your CD player.
When the DIRECT function is ON any **MULTI CONTROL** button you press will change the function of both the receiver and the remote control. When you turn a DIRECT function OFF, you can operate the remote control without affecting the receiver. Thus you could switch the remote control to the VCR and operate that component while the receiver plays a different component.

1 **To turn the DIRECT function OFF (the default setting is ON), press REMOTE SET UP and number button 3 at the same time.**

2 **To turn the DIRECT function ON (if you have turned it off), press REMOTE SET UP and number button 2 at the same time.**

TV CONT doesn't have this feature and thus can't use the DIRECT FUNCTION.

CD/MD/CD-R/VCR/DVD/LD/DVR Player/Cassette Deck Controls

This remote control can control these components after entering the proper codes (see p.29-30).
Use the MULTI CONTROL buttons to put the remote control in the stated mode.

Button(s)	Function	Components
SOURCE ⏻	Press to switch the components between STANDBY and ON.	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
⏮	Press to return to the start of the current track. Repeated presses skips to the start of previous tracks.	CD/MD/CD-R/DVD/LD Player
	Go back channels (channel -).	VCR/DVR
	Play the reverse side of the tape on a reversible deck.	Cassette deck
⏭	Press to advance to the start of the next track. Repeated presses skips to the start of following tracks.	CD/MD/CD-R/LD Player
	Go forward channels (channel +).	VCR
	Play the forward side of the tape on a reversible deck.	Cassette deck
⏸	Pause playback or recording.	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
⏩	Hold down for fast forward playback.	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
⏪	Hold down for fast reverse playback.	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
▶	Start playback.	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
■	Stop playback (on some models, pressing this when the disc is already stopped will cause the disc tray to open).	CD/MD/CD-R/VCR/DVD/LD/ DVR Player/Cassette deck
Number Buttons	Directly access tracks on a program source.	CD/MD/CD-R/VCR/LD Player
	Use the number buttons to navigate the on-screen display.	DVD/DVR Player
+10 Button	Select tracks higher than 10. Press this button and the remaining number to get the track (+10 Button + 3 = track 13).	CD/MD/CD-R/VCR/LD Player
ENTER (DISC) Button	Choose the disc.	Multiple CD player
	Ejects thte disc.	MD Player
	Press to switches between the VCR tuner and the TV tuner.	VCR
	Changes sides of the LD.	LD Player
MENU	Press to return to the start of the current track. Repeated presses skips to the start of previous tracks.	CD/MD/CD-R/VCR/LD Player /Cassette deck
	Displays menus concerning the current DVD or DVR you are using.	DVD/DVR Player
TOP MENU	Press to advance to the start of the next track. Repeated presses skips to the start of following tracks.	CD/MD/CD-R/VCR/LD Player /Cassette deck
	Use to display the lead trailer on a DVD.	DVD Player
△	Pause the tape.	Cassette deck
▽	Stop the tape.	Cassette deck
ENTER	Start playback.	Cassette deck
◁	Fast rewind the tape.	Cassette deck
▷	Fast forward the tape.	Cassette deck
◁ ▷△▽ & ENTER	Navigate DVD menus/options.	DVD/DVR Player

Cable TV/Satellite TV/TV/DTV Controls

This remote control can control these components after entering the proper codes (see p.29-30).
Use the MULTI CONTROL buttons to put the remote control in the stated mode.

Button(s)	Function	Components
TV	Press to switch the DTV on or off.	DTV
	Press to switch the TV or CATV between STANDBY and ON.	Cable TV/Satellite TV/TV
TV FUNC.	Press to switch the TV input. (Not possible with all models. If it doesn't work with the preset code, use the learning feature.)	TV
CHANNEL +/–	Select channels.	Cable TV/Satellite TV/TV/DTV
TV VOL +/–	Adjust the TV volume.	Cable TV/Satellite TV/TV/DTV
SOURCE ⏻	Press to switch the DTV on or off.	DTV
⏮	Move to lower numbered channels	Cable TV/Satellite TV/TV
	Choose the RED commands on a DTV menu.	DTV
⏭	Use to move to higher numbered channels	Cable TV/Satellite TV/TV
	Use to choose the YELLOW commands on a DTV menu.	DTV
⏸	Use as the GUIDE button for navigating	DTV
⏩	Use to choose the GREEN commands on a DTV menu.	DTV
⏪	Use to choose the BLUE commands on a DTV menu.	DTV
▶	Use to get INFO on the DTV program.	DTV
⏹	Use to switch DTV audio tracks	DTV
Number Buttons	Use to select a specific TV channel.	Cable TV/Satellite TV/TV/DTV
+10 Button	Use to add a decimal point when selecting a specific TV channel.	DTV
ENTER (DISC) Button	Use to enter a channel.	DTV
MENU	Select different menus from the DTV functions.	DTV
	Select the menu screen.	Cable TV/Satellite TV/TV
TOP MENU	Clear the DTV menu.	DTV
	Use to bring up the GUIDE on a satellite TV.	Cable TV/Satellite TV/TV
◁ ▷△▽ & ENTER	Select or adjust and navigate items on the menu screen. ENTER : Use to bring up the DTV menus.	DTV
	Press to select or adjust and navigate items on the menu screen.	Cable TV/Satellite TV/TV
EFFECT +/–	For TV and cable TV use tis button toimmediately enter a new channel (CHANNEL ENTER function). For satellite TV use this button to exit the menu screen.	Cable TV/Satellite TV/TV/DTV

MEMO:

- The first four buttons for the VSX-D510 are dedicated to control the TV assigned to the **TVC** button. Thus if you only have one TV to hook up to this system assign it to the **TVC MULTI CONTROL** button. If you have two TVs, assign the main TV to the **TVC** button. If you hook up your system this way, the first four TV controls will always be accessible.

Preset Code List

Device	Manufacturer	Manufacturer Code
DVD	TOSHIBA	001
	SONY	002
	PANASONIC	003
	JVC	004
	SAMSUNG	005
	SHARP	006
	AKAI	007
	RCA	009
	PIONEER	000, 003, 111
LD	SONY	101
	PANASONIC	105, 106
	KENWOOD	103
	PHILIPS	104
	RCA	107
	MITSUBISHI	100
	PIONEER	100, 111
TV	RCA	601, 615, 616, 617, 610, 623 621, 602, 618, 603, 620
	ZENITH	603, 620
	MAGNAVOX	612, 629, 607, 610, 603
	GE	611, 628, 601, 608, 607, 610, 617, 602, 618
	PANASONIC	608, 622, 607
	SONY	604
	TOSHIBA	605, 626, 602, 621
	MITSUBISHI	609, 610, 602, 621
	HITACHI	606, 624, 625, 610, 618
	JVC	613, 623
	SHARP	602, 619, 627
	SANYO	614, 621
	PHILIPS	607
	GOLDSTAR	610, 623, 621, 602
	GRADIENT	630
	RADIO SHACK	610, 623, 621, 602
	PIONEER	600
CATV	JERROLD	701, 702,703, 704, 711, 712, 713, 714, 715, 716
	SA	705, 706, 708, 709
	ZENITH	707, 710, 717
	PIONEER	700
SAT	RCA	201, 203
	SONY	202
	ECHOSTAR	205
	PIONEER	200
DTV	PANASONIC	227
	PIONEER	207, 226
DVR	PIONEER	456
CD	SONY	301, 316, 317, 318
	TECHNICS	304, 326
	KENWOOD	310, 311, 321
	DENON	309
	RCA	302, 319, 300, 313
	PHILIPS	312, 322
	YAMAHA	314, 315, 328
	JVC	303
	TEAC	305, 306, 324, 325, 327
	ONKYO	307, 308, 320
	MARANTZ	323, 312, 324
	SANYO	313
	OPTIMUS	300
	PIONEER	300
CD-R	PHILIPS	346
	PIONEER	345
TAPE	SONY	801, 806
	TECHNICS	803
	KENWOOD	804, 807
	TEAC	805
	DENON	810
	ONKYO	808, 809
	YAMAHA	811, 812
	JVC	802
	FISHER	813
	RCA	800
	OPTIMUS	800
	PIONEER	800
MD	SONY	901
	KENWOOD	903
	SHARP	902
	TEAC	904
	ONKYO	905
	DENON	906
	PIONEER	900, 907(FOR DAT), 902
VCR	RCA	401, 413, 415, 406, 408, 414, 405, 411, 432, 433, 402, 418, 419
	ZENITH	403, 404, 417
	MAGNAVOX	414, 408, 426, 403
	FISHER	412, 426, 427, 410, 425, 420
	PANASONIC	408, 432, 433
	TOSHIBA	405, 409, 426
	JVC	407, 428, 429, 430, 431, 408, 414
	HITACHI	406, 434, 436, 408, 401
	SONY	404, 416, 417, 457, 458, 459, 408
	MITSUBISHI	409, 420, 421, 422, 423, 424, 408, 407
	SANYO	410, 425, 435, 412
	SHARP	402,418,419
	GOLDSTAR	411, 409
	GRANDIENTE	441
	OPTIMUS	408, 432, 433, 402, 418, 419
	PIONEER	400

Troubleshooting

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used. If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

The power does not turn ON.
- Connect the power plug to the wall outlet.
- Disconnect the power plug from the outlet, and insert again.
- Make sure there are no loose strands of speaker wire touching the rear panel. This could cause the receiver to shut off automatically.

The unit does not respond when the buttons are pressed.
No sound is output when a function is selected.
- Make sure the component is connected correctly (refer to pages 6 to 11).
- If MUTING is on, press **MUTING** on the remote control to turn it off.
- Adjust **MASTER VOLUME**.
- If MONITOR is on, press the **MONITOR** button to turn it off.
- If no speakers are selected, press **SPEAKERS** to select the speakers you connected.

No image is output when a function is selected.
- Make sure the component is connected correctly (refer to pages 6 to 11).
- Press the correct function button.

Considerable noise in radio broadcasts.
- Tune in the correct frequency.
- Connect the antenna (refer to page 9).
- Route ⊡⊡ RF and digital cables away from the antenna terminals and wires.
- Fully extend the FM wire antenna, position for best reception, and secure to a wall.
- Connect an outdoor FM antenna (refer to page 9).
- Adjust the direction and position for best reception.
- Connect an additional internal or external AM antenna (refer to page 9).
- Turn off the equipment causing the noise or move it away from the receiver.
- Place the antenna farther away from the equipment causing the noise.

Broadcast stations cannot be selected automatically.
- Connect an outdoor antenna (refer to page 9).

No sound from surround or center speakers.
- Refer to "SPEAKERS setting mode" on pages 13 to 16 to check the speaker settings.
- Refer to "Setting the Volume Level of Each Channel" on page 17 to check the speaker levels.
- Connect the speakers (refer to page 10).

Sound is produced from other components, but not from LD or DVD player.
- Set SIGNAL SELECT to "DIGITAL" or "ANALOG" according to the type of connections made. (refer to page 23).
- Set the digital input settings correctly (refer to page 17).
- Make digital connections (refer to page 6) and set SIGNAL SELECT to "DIGITAL" (refer to page 23).
- Refer to the instruction manual supplied with the DVD player.

No sound is output or a noise is output when software with DTS is played back.
- Set the digital volume level of the player to full, or to the neutral position.

When a search is performed by a DTS compatible CD player during playback, noise is output.
- This is not a malfunction, but be sure to turn the volume down to prevent the output of loud noise from your speakers.

Cannot be remote controlled.
- Replace the batteries (refer to page 4).
- Operate within 23 feet (7 m), 30° of the remote sensor on the front panel (refer to page 4).
- Remove the obstacle or operate from another position.
- Avoid exposing the remote sensor on the front panel to direct light.

The display is dark or off.
- Press **FL DIMMER** on the remote control repeatedly to return to the default.

If the unit does not operate normally due to external effects such as static electricity disconnect the power plug from the outlet and insert again to return to normal operating conditions.

Specifications

Amplifier Section
Continuous average power output of 100 watts* per channel, min., at 8 ohms, from 20 Hz to 20,000 Hz with no more than 0.2 % total harmonic distortion (front).**

Continuous Power Output
Front ..... 100 W per channel (1kHz, 1.0 %, 8 Ω)
Center ..... 100 W (1kHz, 1.0 %, 8 Ω)
Surround ..... 100 W per channel (1kHz, 1.0 %, 8 Ω)

Input (Sensitivity/Impedance)
CD, VCR/DVR, CD-R/TAPE/MD, DVD/LD, TV/SAT
..... 200 mV/47 kΩ
Frequency Response
CD, VCR/DVR, CD-R/TAPE/MD, DVD/LD, TV/SAT
..... 5 Hz to 100,000 Hz $^{+0}_{-3}$ dB
Output (Level/Impedance)
VCR/DVR REC, CD-R/TAPE/MD REC
..... 200 mV/2.2 kΩ
Tone Control
BASS ..... ± 6 dB (100 Hz)
TREBLE ..... ± 6 dB (10 kHz)
LOUDNESS ..... +9 dB/+9 dB (100 Hz/10 kHz)

Signal-to-Noise Ratio (IHF, short circuited, A network)
CD, VCR/DVR, CD-R/TAPE/MD, DVD/LD, TV/SAT
..... 96 dB
Signal-to Noise Ratio [EIA, at 1 W (1 kHz)]
CD, VCR/DVR, CD-R/TAPE/MD, DVD/LD, TV/SAT
..... 79 dB

Video Section
Input (Sensitivity/Impedance)
VCR/DVR, DVD/LD, TV/SAT
..... 1 Vp-p/75 Ω
Output (Level/Impedance)
VCR/DVR ..... 1 Vp-p/75 Ω
Frequency Response
VCR/DVR, DVD/LD, TV/SAT → MONITOR
..... 5 Hz to 7 MHz $^{+0}_{-3}$ dB
Signal-to-Noise Ratio ..... 55 dB
Cross Talk ..... 55 dB

FM Tuner Section
Frequency Range ..... 87.5 MHz to 108 MHz
Usable Sensitivity
..... Mono:13.2 dBf, IHF (1.3 µV/ 75 Ω)
50 dB Quieting Sensitivity ..... Mono: 20.2 dB
Stereo: 38.6 dBf
Signal-to-Noise Ratio ..... Mono: 73 dB (at 85 dBf)
Stereo: 70 dB (at 85 dBf)
Distortion ..... Stereo: 0.5 % (1 kHz)
Alternate Channel Selectivity ..... 60 dB (400 kHz)
Stereo Separation ..... 40 dB (1 kHz)
Frequency Response ..... 30 Hz to 15 kHz (±1 dB)
Antenna Input (DIN) ..... 75 Ω unbalanced

AM Tuner Section
Frequency Range ..... 530 kHz to 1,700 kHz
Sensitivity (IHF, Loop antenna) ..... 350 µV/m
Selectivity ..... 25 dB
Signal-to-Noise Ratio ..... 50 dB
Antenna ..... Loop antenna

Miscellaneous
Power Requirements ..... AC 120 V, 60 Hz
Power Consumption ..... 250 W
In Standby ..... 1 W
AC Outlet ..... 100 W MAX. (SWITCHED)
Dimensions ..... 420 (W) x 158 (H) x 391 (D) mm
(16-9/16 (W) x 6-4/16 (H) x 15-6/16 (D) in.)
Weight (without package) ..... 8.5 kg (18 lb 12 oz)

Furnished Parts
AM loop antenna 1
FM wire antenna 1
Dry cell batteries (AA size IEC R6P) 2
Remote control 1
Operating instructions 1

NOTE:
- Specifications and the design are subject to possible modifications without notice, due to improvements.

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.
** Measured by Audio Spectrum Analyzer.

Dear Customer:

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion-and, most importantly, without affecting your sensitive hearing.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

To establish a safe level:

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

We Want You Listening For A Lifetime

Used wisely, your new sound equipment will provide a lifetime of fun and enjoyment. Since hearing damage from loud noise is often undetectable until it is too late, this manufacturer and the Electronic Industries Association's Consumer Electronics Group recommend you avoid prolonged exposure to excessive noise. This list of sound levels is included for your protection.

Decibel Level	Example
30	Quiet library, soft whispers
40	Living room, refrigerator, bedroom away from traffic
50	Light traffic, normal conversation, quiet office
60	Air conditioner at 20 feet, sewing machine
70	Vacuum cleaner, hair dryer, noisy restaurant
80	Average city traffic, garbage disposals, alarm clock at two feet.

THE FOLLOWING NOISES CAN BE DANGEROUS UNDER CONSTANT EXPOSURE

90	Subway, motorcycle, truck traffic, lawn mower
100	Garbage truck, chain saw, pneumatic drill
120	Rock band concert in front of speakers, thunderclap
140	Gunshot blast, jet plane
180	Rocket launching pad

Information courtesy of the Deafness Research Foundation.

Should this product require service in the U.S.A. and you wish to locate the nearest Pioneer Authorized Independent Service Company, or if you wish to purchase replacement parts, operating instructions, service manuals, or accessories, please call the number shown below.

800–421–1404

Please do not ship your product to Pioneer without first calling the Customer Service Department at the above listed number for assistance.

Pioneer Electronics Service, Inc.
Customer Service Department
P.O. BOX 1760, Long Beach,
CA 90801-1760, U.S.A.

For warranty information please see the Limited Warranty sheet included with your product.

Should this product require service in Canada, please contact a Pioneer Canadian Authorized Dealer to locate the nearest Pioneer Authorized Service Company in Canada.
Alternatively, please contact the Customer Service Department at the following address:

Pioneer Electronics of Canada, Inc.
Customer Service Department
300 Allstate Parkway, Markham, Ontario L3R OP2
(905)479-4411
1(877)283-5901

For warranty information please see the Limited Warranty sheet included with your product.

Si ce produit doit être réparé au Canada, veuillez vous adresser à un distributeur autorisé Pioneer du Canada pour obtenir le nom du Centre de Service Autorisé Pioneer le plus près de chez-vous. Vous pouvez aussi contacter le Service à la clientèle de Pioneer:

Pioneer Électroniques du Canada, Inc.
Service à la clientèle
300, Allstate Parkway, Markham, Ontario L3R OP2
(905)479-4411
1(877)283-5901

Pour obtenir des renseignements sur la garantie, veuillez vous reporter au feuillet sur la garantie restreinte qui accompagne le produit.

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